

CLAIM(S)

What is claimed is:

1. A reinforced nonwoven fabric for fire blocking an article,
5 comprising an open mesh scrim having a first side and a second side, the
first side having crimped, heat-resistant organic fibers compressed
thereon, the fibers held in a compressed state by a thermoplastic binder,
wherein when the fabric is exposed to heat or flame, the fabric is
capable of increasing its thickness by at least three times.
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2. The reinforced nonwoven fabric of claim 1 wherein the fabric
is capable of increasing its thickness by at least five times when the fabric
is exposed to heat or flame.
- 15 3. The reinforced nonwoven fabric of claim 1 wherein the fabric
is capable of increasing its thickness by at least ten times when the fabric
is exposed to heat or flame.
4. The reinforced nonwoven fabric of claim 3 wherein the fibers
20 are held in a compressed state by the combination of thermoplastic binder
and thermoplastic open mesh scrim.
5. The reinforced nonwoven fabric of claim 1 further comprising
the crimped, heat-resistant organic fibers compressed on the second side
25 of the scrim, the fibers held in a compressed state by a thermoplastic
binder.
6. The reinforced nonwoven fabric of claim 1 wherein the open
mesh scrim comprises thermoplastic material.
- 30 7. The reinforced nonwoven fabric of claim 1, wherein the
thermoplastic binder is binder fiber.

8. The reinforced nonwoven fabric of claim 7, wherein the thermoplastic binder comprises a combination of binder fiber and binder powder.
- 5 9. The reinforced nonwoven fabric of claim 1, wherein the heat-resistant organic fiber is a para-aramid fiber.
- 10 10. The reinforced nonwoven fabric of claim 9 wherein the thermoplastic binder is a combination of polyester binder powder and polyester binder fibers, and the open mesh scrim is made from the same or different polyester polymer.
- 15 11. A fire blocked article comprising the reinforced nonwoven fabric of claim 1.
12. A fire blocked mattress comprising the reinforced nonwoven fabric of claim 1.
- 20 13. A process for making a reinforced nonwoven fabric that bulks in heat or flame for fire blocking an article, comprising the steps of:
- a) forming a mat comprising crimped heat-resistant organic fiber and binder fiber,
- 25 b) contacting the mat with the first side of an open mesh scrim, said scrim having a first and a second side, to form a fabric assembly,
- c) applying binder powder to the fabric assembly,
- d) heating the fabric assembly to activate the binder fiber and binder powder,
- 30 e) compressing the fabric assembly to a compressed state, and
- f) cooling the fabric assembly in a compressed state to form a reinforced nonwoven fabric.

14. The process of claim 13 having the additional step prior to step c) of contacting the second side of the open mesh scrim with a second fiber mat comprising heat-resistant organic fiber and binder fiber.

5 15. A fire blocking quilt comprising outer fabric ticking or cover fabric layer; one or more layers of the reinforced nonwoven fabric fire blocker, a cushioning layer of foam or fiber batting, and optionally a stitch-backing layer;

 wherein the reinforced nonwoven fabric fire blocker comprises an
10 open mesh scrim having crimped, heat-resistant organic fibers compressed thereon, the fibers held in a compressed state by a thermoplastic binder.

 16. A method of fire blocking an article with a reinforced
15 nonwoven fabric layer that bulks in heat or flame, comprising the steps of
 a) combining a reinforced nonwoven fabric layer, a fabric ticking or upholstery layer, and optionally a cushioning layer,
 b) sewing the layers together to form a fire blocked fabric quilt, and
20 c) incorporating the fire blocked fabric quilt into the article, the reinforced nonwoven fabric layer comprising an open mesh scrim having a first side and a second side, the first side having crimped, heat-resistant organic fibers compressed thereon, the fibers held in a compressed state
25 by a thermoplastic binder,

 wherein when the fabric quilt is exposed to heat or flame, the reinforced nonwoven fabric layer is capable of increasing its thickness by at least three times.

30 17. The method of fire blocking an article of claim 16, wherein the article is a mattress.

18. The method of fire blocking an article of claim 16 wherein the reinforced nonwoven fabric further comprises crimped, heat-resistant organic fibers compressed on the second side of the scrim, the fibers held in a compressed state by a thermoplastic binder.

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19. The method of fire blocking an article of claim 18, wherein the article is a mattress.